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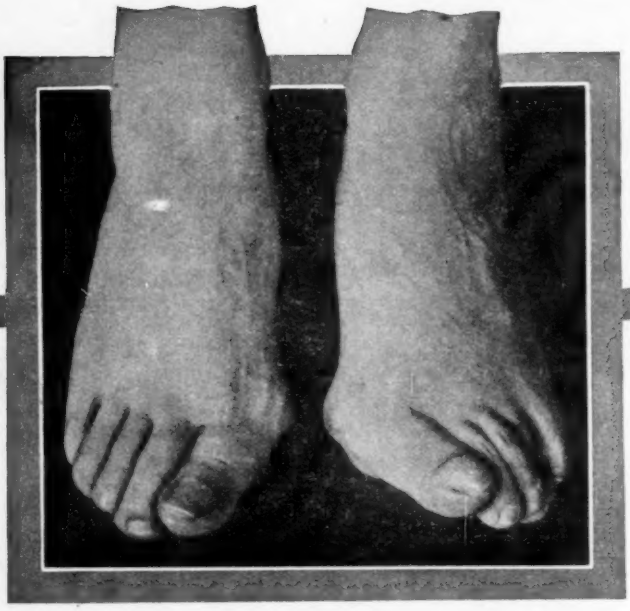

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EDITORIAL

DEATH OF DR. WALTER PORCHER OF CHARLESTON, S. C.

The entire profession of South Carolina will learn with keen regret of the death of Dr. Walter Porcher of Charleston, November 2nd, 1919. Dr. Porcher has been one of the most prominent and active workers in organized medicine in our State for more than 30 years. He filled numerous positions of honor in the South Carolina Medical Association. He was Secretary for 13 years, and at the close of this long service he was elected President, and as president was aggressive in the upbuilding of the interests of the Association. He contributed many papers to the Association and to the Journal, and in his specialty was a leader not only in this State, but far beyond its borders. He was the author of many papers in numerous high class journals throughout the country. An editorial in the "State" expresses well our feelings at this time:

The death of Dr. Walter Peyre Porcher, of Charleston, last Sunday takes from the ranks of physicians of South Carolina an accomplished and distinguished member. He was devoted to his profession and no man lived closer to its best traditions and ideals. In Charleston the medical profession has a history of no common kind. The physicians and surgeons of that city have for more than a century been among the foremost in the country and this Dr. Porcher inherited from his father and his grandfather the understanding of the medical man's place in the social order which gave Charleston its post of honor in the regard of American doctors. Many years ago, when he

was still a yuong man, Dr. Porcher was elected president of the South Carolina Medical Society and his accomplishments and devotion to the profession were often recognized. Besides, he was a great-hearted and lovable gentleman, of a quaint and charming humor that endeared him to a wide circle of friends, and they, sorrowing for his death, will not forget the good life that he lived and the pleasure that his companionship gave.

DR. NORWOOD

In another part of the Journal will be found a tribute to the memory of Dr. Wesley U. Norwood. The members of the Association have been contributing a small assessment for the past two years to liquidate the indebtedness on the monument erected to Dr. Norwood's membory. This obligation has now been discharged and we pause for a moment to pay further tribute to this distinguished country doctor.

It is interesting to note the following extract from the minutes of the very first meeting of the South Carolina Medical Association for the purpose of reorganization in 1869:

> Dr. Norwood, of Abbeville, in presenting his pamphlet upon **Veratrum Viride,** addressed the Association at some length upon the medicinal effect and history of that medicine, and urged its adpotion in the treatment of many diseases.

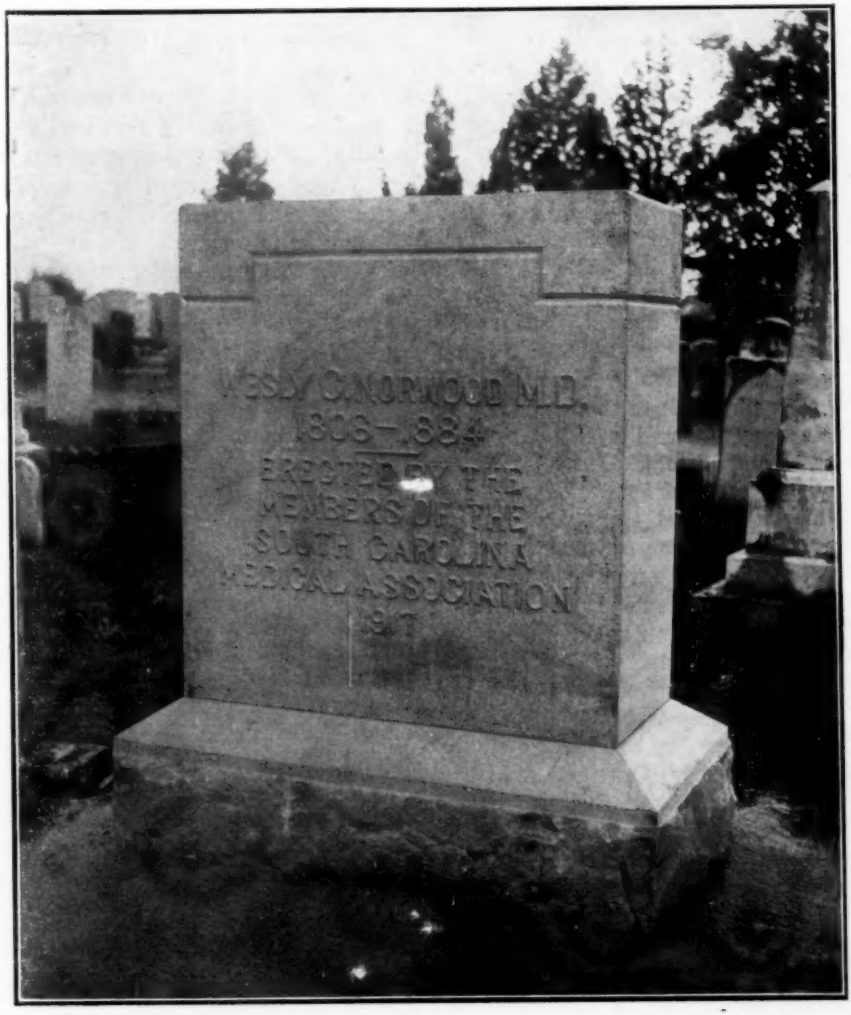
At later meetings the transactions show a virile interest in this important drug. A brief search through the literature at hand and a brief survey of medical society discussions of recent years, discloses the fact that veratrum viride does not occupy as prominent a position in the hands of the therapeutist as it did formerly. It is a drug of considerable therapeutic efficiency. Perhaps its place is still secure in the hands of a majority of general practitioners, at least in the Southern States and chiefly in obstetrical practice. It is not mentioned as a remedy by many of the text books on Obstetrics of today. Dr. Lee says: Veratrum Viride, first used by Dr. Baker of Eufala, Alabama, in 1859, has attained considerable repute in America and Italy as a specific but large experience does not sustain it.

Williams says: Nor have I had any experience with Veratrum Viride which is so highly praised by many American writers.

Hirst says: As soon as the eclamptic attack has passed off inject under the skin ten drops of the fluid extract of Veratrum Viride.

The last edition of Useful Drugs, put out by the American Medical Association as a basis for teaching Materia Medica in the Medical Schools and for the use of Examining Boards, does not mention Veratrum Viride at all.

The thought we wish to leave by this brief editorial has been best expressed by Sir James MacKenzie as follows: "You know well that if a man aspires to research work it is to the laboratories or to the hospital wards he is sent. As a result of my experience, I take a very different view, and assert with confidence that medicine will make but halting progress, while whole fields essential to the progress of medicine will remain unexplored, until the general practitioner takes his place as an investigator. The reason for this is that he has opportunities which no other possesses—opportunities which are necessary to the solution of problems essential to the advance of medicine. But before the part that the general practitioner alone can play is understood, we must look upon the science of medicine, its teaching, and its pursuit with new light in our eyes."


1806–1884
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ORIGINAL ARTICLES

THE EXAMINATION OF THE HEART IN HEALTH AND DISEASE.

By Dr. J. B. Townsend, Anderson, S. C.

THERE are three classic fears of humanity—the fear of Cancer, the fear of Insanity, and the fear of Heart Disease. Precordial pains and disturbed action of the heart so frequently present in indigestion and the effort syndrome have done much to make this the universal phobia. We encounter many persons with heart murmurs who have been misinformed by their physician as to the gravity of these murmurs and who have been warned and admonished never to allow any one to administer an anesthetic, or never to exert themselves in any way, shape or form for fear that their heart may prove unequal to the emergency. These people live in constant dread of dropping dead on the streets and lead a life that is a burden to themselves and their friends. It is one of the bright spots in the life of the true physician to be able to assure these unfortunates that their fears are groundless and that their symptoms are due to a poisonous idea injected by an incompetent physician rather than to an incurable organic disease.

It is also true that many patients seek relief from such symptoms as bronchitis, digestive disturbances, or fatigue who are in reality suffering from some form of heart disease of which they are not aware. By proper treatment we can do much to relieve their present symptoms and more to protect them from future harm.

Read before the Fourth District Medical Association, Anderson, S. C., September 16, 1919.

The heart has been rightly called the vital organ of the body and the question of its soundness is one we encounter at the threshold of almost every diseased condition. So that to pass intelligently upon the soundness of a given heart while requiring less nerve certainly calls for more skill and experience than to remove a normal appendix. In this examination no one sign or symptom is sufficient but many factors enter into the equasion, all of which have to be weighed and correlated one with the other before we are in a position to pass final judgment.

Let us consider some of the factors which enter into the problem of deciding whether a given heart is or is not diseased.

The History: Here as in other diseased conditions the history is of the very greatest importance, it is as we shall see the deciding factor in the interpretation of many murmurs whether they are to be considered or disregarded. If we bear in mind the simple classification of heart disease proposed by Cabot we have only three forms of heart disease, all of which are inseparably connected with its preceding disease. We have first the Rheumatic heart or the heart of streptococcus infection, occurring most frequently in young adults and attacking the mitral valve, altho the aortic is by no means exempt; second the syphilitic heart occuring most frequently in men between the fourth and fifth decade and attacking the arch or the aorta and the aortic valve, never the mitral, and third the Arterio sclerotic heart, occuring in persons with high blood pressure and

other evidences of arteriosclerosis. In this classification no consideration is taken of the congenital or the goiter heart, we might perhaps, add a fourth class to include all of these not included in the above and call them the doubtful class. It is evident that a carefully taken history not only gives us a safe bet as to the nature and location of the lesion but also a long lead as to our prognosis. Certainly the time spent in history taking is as profitable as that spent in the examination of the patient.

The size of the heart: It must be obvious to all that to measure the size of the heart by clinical methods is an impossibility. Correct measurements can be had in the hands of an expert by the use of the X-ray, but this method can not be carried out on all patients as very few of us are so situated that we can call in the help of the X-ray specialist. This valuable method is at present restricted largely to hospital patients. Te percuss out the heart as taught in our student days has proved so unsatisfactory as to be abandoned by most of us. For all practical purposes the size of the heart can be determined by simply locating the maximum apex impulse. In children and in persons with very thin chest walls this can be done by sight but in the vast majority of cases must be located by palpation. In obese persons and those with weak myocardium no impulse can be felt. In these cases the apex located by auscultation selection that point where the sounds are heard loudest. The normal apex should be in the fifth intercostal space three to four and one-half inches to left of the mid line. It is easier to remember that in all persons except those with pendulous breast the nipple is to be used as our land mark. A well defined maximal impulse which lies outside of this nipple line is to be taken as a definite sign of enlargement of the heart. This is especially true if the impulse has moved downward into the sixth or seventh interspace. In children up to the twelfth year the apex beat is to be found normally in the fourth interspace and to the left of the nipple line. In adults the impulse may be pushed out of place by exudates or pulled out of place by adhesions. Enlargement of the heart is never physiological but always pathological. The so-called athletic heart is a myth according to the X-ray findings so that when we have found an enlarged heart we have laid upon us the responsibility of finding the diseased condition which caused it. In this we are greatly assisted by the sounds of the heart. The normal sounds are subject to quite wide variations, in fact it is largely a matter of opinion when some sounds are to be regarded as normal or abnormal. The heart sounds may be accentuated from drugs, exertion or disease, they may be diminished by superimposed adipose tissue or from cardiac weakness. The accentuation, the doubling, the thumping or splashing sounds are all of interest and serve to put us on our guard but as they all occur in health as well as in disease are not themselves sufficient evidence to justify us in coming to any conclusion as to the soundness of the heart.

Abnormal sounds heard at the apex or mitral region: This is the favorite location for murmurs. These murmurs may be presystolic, systolicor may replace the sounds of the heart entirely. They may be functional or they may be organic In young persons the functional murmurs are by far more frequently heard than organic. Of these functional murmurs the cardio-respiratory is the most often heard. This murmur is systolic in time usually of short duration, high pitched, rather superficial and disappearing when the

breath is held and is probably not of cardiac origin at all. There are other systolic murmurs heard at the apex which do not disappear when the breath is held, may be of almost any type and are not associated by any enlargement of the heart, no history of rheumatism nor any symtom of crippled circulation. These are the murmurs which are found in routine examinations of school children, men for the army, or life insurance examinations. These cases are usually diagnosed mitral regurgitation which diagnosis is practically never correct. Cabot is responsible for the statement that mitral regurgitation as a disease entity may be a possibility but is never a probability and that of the four thousand autopsies recorded in the service of the Massachusetts General Hospital he had never seen such a case. Lewis says that even in the hands of experts the diganosis of miregurgitation is an uncertainty and that apical systolic murmurs are to be neglectin in arriving at a prognosis in young men. Temporary and curable mitral regurgitation may result from weakening of the heart muscle, which normally assists in closing the mitral orifice thru the sphincter like contraction of its circular fibers. In aortic regurgitation, chronic nephritis and in arterio-sclerosis where there is dilation of the left ventricle there is mitral regurgitation, due to the stretching of the ring into which the valve is inserted.

Very occasionally there is to be heard at the apex a systolic murmur which is due to the diseased condition of the aortic valve, the classic Flint murmur suspected during life and confirmed at autopsy. Apical systolic murmurs unless backed up by a history of rheumatism or enlargement of the heart or occuring in persons over forty have not the diagnostic signification which we formerly thought them to have. Presystolic murmurs differ greatly from the systolic in that they are not functional but always organic. It is one of the organic murmurs which is not constant, it may be present today and absent tomorrow, it disappears as the myocardium grows weaker and returns as compensation sets in. This murmur may be brought out by exercise but occasionally it refuses to be coaxed out even by considerable exertion. It can in nearly all cases be elicited by the Morrison test which consists in the administering of amyl nitrite while the stetoscope is placed over the apex, the murmur is heard gradually to reach its maximum, and then gradually disappear. According to Dr. Cabot after the heart has been invaded by infection mitral stenosis is the primary lesion. These changes in the heart give rise to enlargement of the heart; accentuation of the first sound and of the pulmonic second sound of the heart. Even with the confirmatory signs present it is not safe to make a diagnosis of mitral stenosis without the presence of the presystolic murmur.

Abnormal sounds heard in the Pulmonary area: This area has been called by Dr. Osler the area of romance because I suppose you can not believe anything you hear. Murmurs are very frequently heard in this region but little diagnostic importance can be attached to them. However the second pulmonic sound is of great importance as it is an index we have as to the strength of the right heart.

Abnormal sounds heard at the base: The second right intercostal space is spoken of as the aortic because aortic sounds are best heard here, but frequently the aortic sounds are much better heard over the sternum or in the left fourth intercostal space. Murmurs heard here are both systolic and dias-

tolic in time. Here as in the mitral region the murmur is not the whole cheese and we are not justified in concluding that because we hear a systolic murmur that stenosis exists or that a diastolic murmur always means aortic regurgitation. The presence of an aneurism or an enlarged and roughened arch of the aorta will give rise to both of these murmurs, also in hypertrophy and dilatation heart murmurs of this nature are very frequently present. Lewis says in the absence of thrill aortic stenosis should never be diagnosed without first diagnosing mitral regurgitation and that aortic regurgitation should never be diagnosed without some of its accompanying signs such as Corrigan pulse, pulsation capillarius, throbbing arteries high pulse pressure, pistol shot phenomena in the brachial and femoral ateries. The history of syphilis greatly assists us and in all cases of aortic disease a Wassermann should be made.

Irregular action of the heart: Irregular action of the heart occurs very frequently in nervous conditions and especially in the effort syndrome as well as in mitral stenosis and in auricular fibrillation where the heart is in a state of absolute arythmia. We can distinguish between arhythmia which is of nervous origin and that of organic origin by simply putting our patient to the effort test when the irregularity is increased by exercise and when the arhythmia persists even when the pulse rate reaches 120 we can be absolutely assured that the arhythmia is organic and not functional.

Thrills: Thrills when present are conclusive evidence of the existence of stenosis but unfortunately this very helpful sign is more often absent than present.

In conclusion then Lewis has summarized the whole matter and put it in a form easy to be remembered as follows:

An aortic dialstolic murmur.

Distinct overdistension of the veins of the neck.

Definite signs of enlargement of the heart.

Irregular heart action which is maintained on exercise.

A diastolic rumble at the apex.

Apical or basal thrill.

Widespread arterial disease or a persistent high blood pressure 180 in elderly men a persistent blood pressure of 160 or over in a young man.

TREATMENT OF HYPERTROPHY OF THE PROSTATE IN THREE STAGES FOR THE BORDER-LINE CASE.

By C. A. Mobley, M.D., Orangeburg, S. C.

SINCE prostatic surgery had its beginning one of its drawbacks has been the uraemia or anuria following removal of the hypertrophied gland.

It was pointed out by Judd of the Mayo Clinic that the operation per se had nothing to do with the causation of uraemic symptoms but that it was the sudden relief of nitra-renal pressure that caused kidney engorgement and complete or partial loss of kidney function; upon failure of the kidney to throw off the body's waste products a condition of uraemia came about. Wright of the University of Minnesota, in January, Surgery, Gynaecology and Obstetrics, claims that as small an amount of residual urine as 100 cc. will cause a flattening of the renal papilla and a consequent anemia of these organs. With a sudden relief of pres-

Read before South Carolina Medical Association, Florence, S. C., April 16, 1919.

sure the pyramids straighten up and the dilated calices contract more blood is thrown into the kidney, and the tubules in their new anatomic arrangement engorged with blood are unable to do their work.

If, however, the bladder is gradually relieved of its residual urine there is time for the kidney to accustom itself to the gradually decreasing intra-renal pressure and no symptoms of uremia intervene.

It is not my purpose to discuss the relative merits of perineal and suprapubic prostatectomy. The supra-pubic operation is now on a firm basis and gives much better functional results than the perineal (as all danger of incontinence is eliminated) and is fully as safe an operative procedure.

It is generally admitted that a suprapubic prostatectomy done in two stages is safer than the one-stage operation. The removal of the prostate not being done at the time of relief of kidney pressure by the cystostomy.

Judd relieves the pressure by preliminary ureteral cathetrization and then removes the prostate by free bladder incision and removal of the gland under direct inspection. Here, however, we have the danger of infection of the prevesical space super-imposed upon a major surgical operation (the prostatectomy).

If on the other hand we do a suprapubic drainage as soon as the patient comes under observation, as is done by advocates of the two-stage operation, we thrust upon him a major surgical procedure (the cystostomy) when he is certainly in poor condition to stand it.

Therefore it has occurred to us to combine the methods of these two schools, trying to get the best points of each. The average prostatic with a small amount of residual urine, 40% phthalein and good general condition, will, barring accidents, get a good result from any method whereby the gland is completely removed and the sphincters preserved intact.

The method we outline is for the borderline case, with low phthalein out put, say 12% in one hour, extremely high or extremely low blood pressure, probably with complete retention of urine and with perhaps a degeneration of the heart muscle. A one-stage operation would certainly be a hazardous thing for him.

1st stage—Our method is as follows: Upon the admission of a patient in the above condition urethral catherization is begun. A small catheter is used. The urethra is irrigated with boric solution before cathelerization and flushed with argyrol afterwards. Only a small amount is withdrawn. This is done every 3 or 4 hours until the bladder is emptied. This usually takes two or three days. When the quantity of residual urine has decreased to about one-half what it was, at first, as nearly as we can judge, one-half the amount of urine withdrawn is replaced by weak boric solution. This is to keep up pressure in the kidneys in a gradually lessening degree and at the same time to get rid of the absorption of decomposing residual urine. After the bladder is completely emptied the patient has indwelling catheter secured by adhesive tape and the urine is allowed to flow out continuously. If he should not tolerate this the catheter is removed and he is again catheterized regularly. None of our patients have developed uraemic symptoms during this gradual decompression of the kidneys. However, they all show more or less marked depression; as loss of appetite, general weakness, etc. The specific gravity of the urine invariably decreases during this period. As no operation has yet been done the patient

is in the best possible condition to with stand this storm.

2nd stage: When the phthalein and specific gravity of urine rise again to what we believe is a maximum for the patient in question a cystotomy with insertion of button-end catheter is done under local anaesthetic with a preliminary injection of one-fourth grain morphine and one-150th atrophine. The opening in the bladder is made as high as possible, this favors early healing. He is usually out of bed in 48 hours and has but little reaction.

3rd stage: About a week or ten days later if the patient's general condition is good a prostatectomy is done. The hypertrophied prostrate being enucleated by passing the finger through the fistula into the bladder the prostate being steadied by two fingers in the rectum. Hemmorrhage is controlled by hot packs, etc., and a Freyer tube is inserted and held in place by a stitch. If the old incision is torn by the manipulations this is stitched up. Again in 48 hours the patient is out of bed.

I have used this method with six borderline cases. All are alive. All have perfect urinary control. One man's fistula closed permanently in six days. The longest took 20 days to heal.

The technique as I have outlined it, may appear to you unnecessarily complicated but I believe it will save lives. If it will save lives that would be lost by other methods the extra trouble entailed is worth while.

To summarize the three stages are:

(1) Gradual decompression of kidney with elimination of uraemic symptoms, before any operation is attempted.

(2) Formation of our avenue by which the prostate is to be removed, and a complete blocking off of the prevesical space from danger of infection at the time prostate is removed.

(3) Removal of prostate, with no danger of uraemia or of infecting the space of Retzius.

WESLEY U. NORWOOD, M.D.

Appreciation by G. A. Neuffer, M.D., Abbeville, S. C., Member Memorial Committee, South Carolina Medical Association.

MR. Wesley U. Norwood of Cokesburg, S. C., died at his home in that village, July 15th, 1884, after a long illness in the 78th year of his age. He graduated in medicine at Castelton, Vermont, and practised his profession for over fifty years. His success as a practitioner was great and only limited by his power of endurance and willingness to work. His physical capability for work was remarkable, and this together with energy, promptness, self confidence, added to real ability secured and maintained a practice to which few attain. In recognition of his distinguished position as a practioner, he was elected to a Professorship in Oglethorpe Medical College, Savannah, Ga., in 1856, which he declined.

Dr. Norwood is known throughout the world for his labors and discourses in reference to the therapeutical effects of Veratrum Viride. The money derived from the sale of this preparation known as "Norwoods Tincture," brought him a handsome income and fortune. The Shakers of Mount Lebanon, W. Va., manufactured the tincture and paid Dr. Norwood a royalty. During the civil war Dr. Norwood like everybody else in the South, sacrificed everything he had for his country; when the war ended in 1865 he returned to Cokesbury penniless. During the

war he had not heard from the Shakers and had been completely out of touch with them.

The Shakers, however, had not forgotten him; they had kept a strict account of his royalty, as they continued to make Norwood's Tincture and turned over to him quite a handsome sum which had accumulated during the war. By this fortunate occurrence Dr. Norwood was about the only man in Cokesbury who had real money, the others had plenty of Confederate money which was then worthless

Dr. Norwood very wisely invested his money in land; and bought some Piedmont Cotton Mill stock.

Dr. Norwood's name appears in the list of the members of the Abbeville County Medical Society published May 4th, 1835.

His home was made happy by his genial disposition and his affectionate relations with his family. His tastes and habits were thoroughly domestic. His highest enjoyments were associated with home life. He was a member of the Methodist Church, and was buried in Upper Long Cane cemetery, at Abbeville, S. C.

Death came to him at an age when it is considered that to live much longer is to encounter mental and physical infirmities which render our present existence undesirable. But his powers of mind and body were so well preserved, that his departure seemed untimely.

He was married twice but left no surviving children; two of his sons died in the civil war, his wife and five grand children are his nearest surviving kin.

A life spent in the alleviation of human suffering is itself a grand memorial; but it is only after the course is finished that the salutary services in the silent profession and the added inspiration and influence of an exalted character and a noble life are fully comprehended and appreciated.

"Death is the crown of life."

SOME OBSERVATIONS ON DIARRHEA ORIGINATING IN FAULTY GASTRIC FUNCTIONING.

George M. Niles, M.D., Atlanta, Ga.

THE term diarrhea is usually applied to the too frequent discharge of more or less fluid stools, and may vary within wide limits. The personal equation must be considered, for, while the majority of individuals secure one daily movement of semi-solid consistence, some consider themselves normal with two or three in 24 hours, and a very few evacuate the bowels only once in two or three days, seeming to suffer from it neither inconvenience nor impairment of health.

When, however, the peristalsis normal to the individual is hastened, when the stools become too frequent and too watery, and when relief is not obtained after the intestinal tract is thoroughly emptied, it is necessary to find the location giving rise to this abnormal condition.

The reader should be reminded that we are dealing with a canal which is lined with various forms of glandular epithelium, and which has to perform functions of digestion, absorption, and elimination, while it is in direct communication with external agencies, some harmless, some beneficial, some dangerous. These functions being mutually complementary, a disorder in one promptly leads to disturbance in the others.

The etiologic factors concerned in the many forms of loose bowel movements will not be specifically considered here, except as they relate to disturbances of the stomach functions,

and this diarrhea expressive of faulty gastric digestion may be denominated gastrogenic diarrhea, or, as characterized by Einhorn and Oppler, diarrhea gastrica.

The fact that digestion of foostuffs can proceed satisfactorily in the case of patients with increased or diminished, or even lost secretion of the gastric glands, and the fact that, under such conditions the bile, pancreatic juice, and succus entericus seem to take on an increased compensatory activity, permitting metabolism to continue almost normally, has caused many otherwise careful investigators to minimize the importance of gastric delinquencies upon an accelerated fecal current.

An acute lientery due to gastronomic excesses requires neither diagnostic acumen nor therapeutic skill in its recognition and management, and need not be dwelt upon here.

There are, however, frequently coming under observation cases of chronic diarrhea, where all disturbing factors incident to the small and large intestine, including the auxiliary organs, have been thoroughly investigated, where hygienic, dietetic, and medicinal measures have been intelligently invoked, but the loose bowel movements are not abated.

As in a number of instances of civic and corporate unrighteousness recently brought to light, the chief aim of those concerned in the correction of the abuses was to get "the man higher up," so we, in our efforts to readjust a disquiet peristalsis, should likewise get at "the organ higher up," for in so doing often the key to the whole situation will be revealed.

Hemmeter uses these words in an article recently published: "Whenever there is chronic diarrhea, it is absolutely necessary to examine the stomach contents, even if the patients have no stomach symptoms."

Blackader, of Montreal, stated recently: "More important, however, as an etiological factor in the production of loose movements, is a faulty performance of gastric functions. Both defective secretion and defective motility favor fermentation in the gastric contents, and lead to the development of irritating organic acids and gasses, an dalso to a great increase of bacterial growth. Hypersecretion with marked hyperacidity of the gastric contents may, by the discharge of extremely acid chyme into the duodenum, neutralize the normal alkalinity of the contents of the small intestine, and by so doing inhibit the action of the pancreatic enzymes, irritate the intestinal mucosa, and interfere with absorption."

In establishing the diagnosis of gastrogenic diarrhea, the first point to note is the history of present or past stomach symptoms.

Unless in an indirect manner, a hyperacid stomach will not cause diarrhea —on the contrary, constipation is usually present. My records for the past several years disclose only one instance of a chronic diarrhea, that could be fairly ascribed to a hyperchlorhydria.

In achylia gastrica diarrhea is extremely common. Stockton noted 31 patients complaining of chronic diarrhea out of 115, and Woehnert, in analyzing the histories of 16 cases, found diarrhea in the majority. Von Tabora observed typical diarrhea in twenty per cent. of his cases, while my own records approximate thirty per cent. of diarrheal histories where there was found either absence or marked diminution of gastric juice.

Subjectively, Kincaid remarks that this diarrhea is rather different from that due to primary intestinal disturbance, in that it occurs without straining and usually without pain, though there may be colicky pains, varying in

severity with the size and character of the meal. Occasionally the bowels move several times in succession early in the mornings, the stools being large and containing visible particles of undigested food. Also the desire to evacuate the bowels soon after a hearty meal is of frequent occurrence, the reason being apparent.

It has also been proved that in hypoacid conditions overgastric motility is the rule, and that the extra activity beginning in the stomach starts a wave which rapidly continues to the colon. This I have observed more often after breakfast.

Another fruitful source of gastrogenic diarrhea is found when, unchecked by the antiseptic power of free acid, the intestines are flooded by specific microbes from the stomach, completely overwhelming their normal flora. There is then set up, according to the composition of the nutritive soil, either an "intestinal putrefying dyspepsia," spoken of by Von Tabora, or, more often, an "intestinal fermentative dyspepsia" as described by Schmidt and Strasburger.

Long continued gastric achylia may be followed by pancreatic achylia, producing "secondary insufficiency of the digestion of the small intestine," as denominated by Schutz. Under such conditions we find in the feces yeast, sarcinae, long bacilli, or flagellates, originated in the stomach and propagated in the intestines.

Barring that produced by intestinal parasites, the most important information concerning the etiology of practically every form of chronic diarrhea is obtained by a painstaking examination of the stools after the Schmidt-Strasburger test diet, and, while it demands some care and attention to detail, the data gained is nearly always amply worth the trouble entailed.

This test diet in its simplest method consists of the following: Morning, coffee, tea or cocoa with much milk, oatmeal with milk, a soft-boiled egg, a roll with much butter. Noon, bouillon, if desired, four ounces of lean minced beef roasted in butter, half raw inside, a whole plate of finely mashed potatoes, tea with milk, a roll with butter. Evening, oatmeal with plenty of milk, one or two eggs cooked in any desired way, or roast veal if preferred, a roll with butter, and tea with milk.

This should be kept up for about three days, and the stool then examined microscopically. The presence of undigested connective tissue, especially if there is much of it, is nearly always sufficient to name the stomach as the culprit.

Schmidt and Aaron claim, and I believe correctly, that of all the digestive secretions, the stomach juice alone can digest raw connective tissue.

Very occasionally there is a hypoacid stomach that seems capable of digesting this tissue, and on the other hand there are hyperacid ones that seem inadequate to the task, but such rare exceptions need not militate against the value of this test, for in such instances there will be other indications pointing to a defective gastric performance.

Another test for the activity of stomach digestion is the desmoid-test of Sahli. This test consists of tying a small rubber bag filled with methylene-blue with a thread of catgut. This bag is swallowed with the noon meal, and if within 24 hours the urine turns blue, the stomach is doing fair work, for catgut is another substance only amenable to solution in the stomach, he believes.

Having become satisfied that a chronic diarrhea is of a gastrogenic nature, the treatment naturally focuses on the stomach, though irritative states of the intestines, concomitant or sec-

ondary, must not be neglected.

In cases of achylia gastrica or hypoacidity, HCl is the sheet anchor in the treatment, and may be given alone or with pepsin. While we cannot hope to supply enough of either of these agents to carry on normal digestion, we usually get prompt and satisfactory results, not only in gastric but also intestinal indigestion. In a few days the connective tissue disappears from the stools along with a marked amelioration of the diarrhea.

I have noted, as well as others, an occasional achylic stomach that seemed intolerant of HCl, and this idiosyncracy must be respected when met.

In addition nux vomica, condurango, or orexin before meals will often wake up a sluggish gastric mucosa, and be followed by a satisfactory secretion.

When the pylorus is relaxed and patulous, permitting a too quick emptying of the stomach, as well as the escape of unprepared food into the duodenum, intragastric faradism with external vibratory massage is frequently of decided benefit.

Dietetic regulation is, of course, highly important. Meats should be soft, tender, well cooked and well divided, and as free as possible from connective tissue. Foods containing an excess of cellulose should be avoided, and the well cooked or mashed vegetables and fruit allowed. Especially well borne are the vegetable purees, as those of peas and beans.

Should the teeth be bad, they should be put in order, as thorough mastication is a **sine qua non** in the management of these conditions

Artificially soured milk, or lacteal champagne, generally agrees better than sweet milk, not being so prone to set up flatulence. The latter, when used, is best peptonized.

Lavage of the stomach holds a valuable place in the treatment of chronic diarrhea, even in instances where the proof is not clear as to its gastric origin. We sometimes encounter cases, which, for want of a better term, are designated "chronic dyspeptic diarrheas," and where a lavage containing nitrate of silver or salicylic acid gives almost spectacular results.

If antiseptic treatment of the stomach is indicated, as in dilation of the stomach—atonic type—with fermentation and motor insufficiency or stenotic type, with fermentation, motor insufficiency and gastritis, boracic acid, sodium salicylate, thymol, creolin, lysol, or ichthyol, in average strength (about 1:1000) may be employed to advantage. When these medicated douches are used, however, it is well to use a mild saline solution first, then the medicated fluid, then conclude with plain water.

I might fitly add that in every chronic diarrhea, whether from intestinal irritation, from pathogenic bacteria or protozoa, from defects of intestinal absorption or secretion, or even from hurried peristalsis due to impulses received from the large nervous centers in the cord and cerebrum, intelligent investigation of the stomach activity, with proper hygienic and therapeutic measures directed to that much abused viscus, will in a vast majority of instances yield results entirely commensurate with the time and thought thereon expended.

ABSTRACTS

THE MENACE OF THE PLAGUE

We are reminded by two recent events in widely separated parts of the United States, what a serious menace is held over us by the smoldering of the plague in various places. October 29, while the American Public Health Association was meeting in New Orleans, a death from plague occurred in that city, and more cases have been reported since. This was the first human case reported in that city for several years, and plague-infected rats have not been found for some time. A still more ominous occurrence is the recent epidemic of plague in Oakland, Calif. The first case appeared, August 18, in a squirrel hunter, and was followed by thirteen cases of the pneumonic type, twelve of them fatal. Three of the patients, including the original squirrel hunter, were treated at home throughout their illness, with no precautions. The others in whom the identity of the infection was recognized were either hospitalized or completely isolated. The last death in this epidemic occurred on September 11, since which time no further cases have developed. It is inevitable that a certain sense of insecurity will be caused by these events, and that redoubled effort will be made to minimize the danger of squirrel plague infection. The Oakland epidemic suggests the unplesant possibility of a more widespread outbreak of pneumonic plague where climatic conditions are favorable. It does not seem to be outside the range of possibilities that sooner or later the plague may win a foothold among the rats in the slums of some of our large Northern cities. If this happens, human pneumonic plague must evidently be looked on as a possible sequel.—Journal A. M. A., Nov. 8, 1919.

THE ALLEGED FOOD VALUE OF SACCHARIN.

Not long ago attention was directed in The Journal to the subject of physiologic oxidation and its alleged relation to certain catalytic properties of the tissues. The latter, and particularly the blood, are capable of liberating oxygen from hydrogen peroxide by an enzyme-like reaction which has been ascribed to "catalase." It has been assumed by a few investigators, notably Burge, that a measure of this catalytic power of the tissues is an indext of their metabolic activity. We need not reiterate here the criticisms of this view which have already been advanced, notbably by Becht. He remarks that since the catalytic power of the blood varies between enormously wide limits under the same conditions, it is unlikely that the catalases are important and that the measurement of them can explain "the mysteries of the processes of oxidation." One of the factors particularly advanced by Burge in support of his theory was the asserted increase in catalase noted as the accompaniment of features known to promote metabolism. Stehle has repeated the studies at the University of Pennsylvania School of Medicine without finding the parallelism on which the catalase theory of metabolism is based. He observed that the fluctuations in the catalase content of the blood are due to variations in the number of red cells. Consequenlty, Stehle notes,

it is simpler to regard the catalase content as dependent on the number of erythrocytes than to assume any direct relation between catalase and biologic oxidations. Among other compounds, Burge has ascribed to saccharin the property of increasing the catalase content of the blood. Correlating this with an increase in metabolism, he concluded that saccharin exhibits advantages characteristic of foods that are known to augment metabolism. Despite the fact that the doses used by Burge in his experiments amounted to 5 gm. per kilogram of body weight and thus far exceeded any dietetically significant quantities, his seeming approval of the effect of these enormous doses of saccharin was promptly made use of by certain advertisers to promote the use of this chemical substance in the diet. Stehle has disposed of the assumed basis for this undesirable propaganda by what amounts essentially to a denial of the claim made. The advocacy of saccharin as a food can no longer pose in the garb of scientific proof.—Journal A. M. A., November 8, 1919.

POLITICS PLAYS WITH PUBLIC HEALTH

The dictum of Disraeli that the care of the public health is of primary importance to the state seems frequently to have been taken by the politician to mean that positions in the public health department are primarily for his disposal. Newspapers coming from Hawaii indicate that the game has been played in that territory with all the old angles. About a year ago a new governor was appointed. At the time of his appointment the executive head of the public health department was a man who had been in public health work in Hawaii for some twenty-five years. During the time of his incumbency an organization was established that prominent public health authorities appraised as probably equal to any health department in the United States and better than the majority. The new governor removed the incumbent and appointed as head a business man—to be specific, a salesman of automobiles. According to the newspapers, the qualifications of the new health official soon were taxed to the utmost and he found himself somewhat in the position of a driver who holds the wheel on a car after the steering knuckle has broken. In an attempt to get out from under he involved himself with a local health officer, and according to the Honolulu papers the governor is now looking for a new head for the health department. One of the requirements is that he shall not be a business man—a knowledge of automobiles will not be considered necessary.—Journal A. M. A., Nov. 8, 1919.

PREVENTION OF DISEASE.

In remarks relating to an inquiry as to the prevention of ordinary epidemic diseases and the future trend of methods to this end, G. A. Soper, New York (Journal A. M. A, Nov. 8, 1919) says that the scope of such inquiry is necessarily limited to the small portion of the world's population available for such efforts, and the records are therefore imperfect. As regards the great epidemic diseases we find that definite and effective procedure are available to combat most of them. The existing difficulty is in the practical application of these procedures, and also because the diseases themselves have to be combated mainly or often among peoples who live under very insanitary conditions. It is in consequence of this that

when cases of cholera, plague and typhus are occasionally brought to western countries there is little fear of them, but when they occur in some other countries it may be impossible to stamp them out. A single case is quickly managed, but a widespread epidemic may be uncontrollable. So far as influenza, the greatest of all epidemic diseases, is concerned, we know nothing. We do not know what influenza is nor how it can be prevented. It is to be hoped that the intensive studies being made may relieve the situation, but so far nothing practical has been deduced. Soper remarks on the disorders that were so unmanageable in former years, like scarlet, fever, diphtheria, measles, etc., and which of late years have come down to a low and uniform prevalence. In some of these we know no more about their cause than we did before, and they are less prevalent more on account of indirect influences that bear on them, than on any active measures now being taken. It is impossible to say just how this is, but probably it has something to do with the higher standards of living. Disease disappears with dirt, ignorance and disorder, and there is proportionately less chance of its spreading with improvement in these respects. In the management of the respiratory affections terminating often in pneumonia, the least progress has been made. The group constitutes the leading cause of death in most civilized countries. The death rate curve from pneumonia is different from that of any other infection. First, it lacks uniformity to a marked degree. Second, it is always high. Third, it is not declining. Its behavior is characteristically epidemic and no means have yet been discovered to control it. These facts should be recognized at once. The great fields of effort against epidemic disease are: First, sanitation, the disadvantages of which are the difficulties of sanitary work in small communities. Second, administration, or board of health, work which must be skilful and uncorrupted by political or other considerations. An important field for administrative health regulation, only recently fully appreciated, is the prevention of disease connected with industrial occupations. Personal precautions are restricted and uncordinated as generally practiced. Soper lists the various methods—sanitation, board of haelth work and personal precautions — under their various subheads of water supply, sewerage, land drainage and cleaning, isolation of the infectious sick, vital statistics, supervision of food, etc., sanitary inspection of dwellings and work, plumbing regulation and supervision of dangerous occupations. Personal precautions are the rules of good health and cleanliness, avoidance of dangerous drugs, foods, etc. When these procedures are considered in relation to rural conditions, it is found that most of them are not applied, though the general death rate from all causes is slightly higher in the cities. Diseases that have occurred in the camps during the late war have been explained by some on the ground that the men were largely from rural districts, and had not acquired the immunity of the urban resident. War experience has been very instructive in showing that danger lies in direct and often obvious channels instead of roundabout and mysterious ones. It has also shown us our failures, especially in our fight against respiratory affections. The results obtained are not only available in war but in civil conditions. Schools of hygiene and the insurance companies can help in public education, but competent professors in our medical schools

and universities should take the leadership in this work. The responsibility for the teaching that is required belongs primarily to them.

CALOMEL INUNCTIONS

H. N. Cole and Sidney Littman, Cleveland (Journal A. M. A., Nov. 8, 1919), have experimented with the effects of the substitution of calomel inunctions for syphilis instead of the mercurial blue ointment, which is very uncleanly, leads to discovery, and frequently sets up an irritation of the skin. The advantage of lack of salivation means lack of effect on the system. Brief notes are given of 54 patients treated intensively with calomel rubs, and the conclusions reached are as follows: "1. Calomel inunctions are almost totally inefficient against primary and secondary syphilis. 2. Calomel inunctions very rarely produce salivation or gingivitis. This means poor absorption of the mercury and explains this clinical inefficiency. 3. Calomel rubs occasionally produce a dermatitis. These results have led us to abandon calomel inunctions, and we would strongly advise against their further use in the treatment of syphilis."

MALARIA CONTROL

"Malaria is recognized as one of the most serious of the disabling diseases of man," says Wickliffe Rose, New York (Journal A. M. A., Nov. 8, 1919). In mild form it is world-wide in distribution, and in its malignant form belts the globe in a broad zone, including tropical and semi-tropical regions. There are few diseases, however, he says, that present so many vulnerable points of attack and which, perhaps, can be more definitely or certainly controlled. The great drawback to anti-malarial measures is the cost. But recent demonstrations indicate that malaria control can be put within the reach of the average community. Rose reports experiments of four general types made in the field for ascertaining the degree of efficiency under given conditions, and the cost of malaria control by anti-mosquito measures, by the screening of houses, by administration of immunizing quinin and by direct attack on the parasite in the blood of the human carrier. Measures of the first type were tested at Crossett, a lumber town of 2,129 inhabitants in Ashley County in southeastern Arkansas, about 12 miles north of the Louisiana line. Crossett lies in a level, low-lying region at the edge of the so-called "uplands." A large lumber corporation assisted in the anti-mosquito measures. The details of the work are given, and the same were undertaken at another town, Hamburg, under somewhat more difficult conditions. A further demonstration was made in 1918 in four Arkansas towns, and the results show the possibility of mosquito control and that it pays. Like tests of screening were made, also of immunizing carriers, and immunizing doses generally, in other communities. The conclusions are that in an average town of 1,000 inhabitants or more, with a reasonably high infection rate, malaria control by anti-mosquito measures is economically favorable; in fact, a sound business investment. In heavily infected regions, where the cost of mosquito control would be prohibitive, the amount of malaria may be greatly reduced by screening, immunizing quinin or destroying the parasite in carriers, and justify the hope that with the systematic application of these measures the malaria can be held within resaonable bounds, within limits of cost that the average community can

afford. It will be prepared to provide the funds when the results are shown and the continuation of demonstrations is advisable. The article is illustrated.

SYPHILLIS OF THE EPIDIDYMIS

H. E. Michelson, Minneapolis, (Journal A. M. A., Nov. 8, 1919), says that syphilitis involvement of the epididymis or cord is rare and if present is often overlooked. He finds comparatively little literature on this subject and offers his notes with the hope that the scrotal contents will be more often examined in the routine handling of syphilitic cases. Three forms of syphilitic epididymitis have been described: (1) acute diffuse interstitial; (2) chronic diffuse interstitial, and (3) gumatous (circubscribed). The acute diffuse interstitial type may occur the second month after infection, and there is swelling and induration and some pain. Later it is usually solid and somewhat sensitive, and in some cases the pididymis becomes atrophic, occluding the lumen. It seldom extends to the testicle, and the two epididymides rarely get affected at the same time. The chronic diffuse interstitial type is a connective tissue condition which may follow the acute. It is a slow, insidious type and may consist of a series of distinct cartilaginous indurations. It is usually painless until the patient's attention is called to it, when he may complain of dragging sensations and tingling pain. The induration does not taper off into normal tissue, and the vas deferens is seldom involved. The effusion, occurring at one stage of another, may be due to obstruction of circulation or to chronic passive congestion not large in amount. The gummatous type begins in the late period of the disease, showing itself in several small nodules, scattered or close together, painless and insidious in development. They rarely break down to the extent of rupturing externally. Several cases are reported showing the different types. The more common type is the chronic diffuse interstitial one. The entire epididymis is frequently involved. Some cases of hydrocele are also due to syphilis.

RAGWEED DERMATITIS

R. L. Sutton, Kansas City Mo. (Journal A. M., Nov. 8, 1919), says that the important part played by anaphylaxis in the causation of various eruptions has long been recognized, and quotes from Cooke and others as to the accepted explanation of the phenomenon. He reports four cases of dematitis, the cause of which is traced to ragweed pollen, and which yielded to specific treatment, with extracts of the same. The results were fairly good when the patients were able to follow up the treatment. The patients were all stock men or farmers. In one instance the treatment could not be regularly carried out and the benefits could not be obtained. The plants which cause such dermatitis are probably the same as those causing hay-fever, and "the principal offenders, as Lowdermilk, Scheppegrell and others have demonstrated, are the common ragweed and the giant ragweed, with mugwort (Artemisia heterophylla), western ragweed (Ambrosia psilostachya) and bur marsh elder (Iva xanthifolia) in the lesser roles." The size of the pollen, as Scheppergrell has said, is responsible for the eruptions, that of ragweed being so small and light that it is easily carried by the wind over considerable areas of territory. The initial dose should be small, not over from 0.00001 to 0.0003 mg. of pollen protein, increasing afterward accord-

ing to the reaction obtained. A safe plan is to inject the vaccine every third or fifth day, increasing from 10 to 30 per cent. each time. The reaction is occasionally very severe, and it is always well to have atropin and epinephrin solutions at hand in case they are needed. The local treatment is that of an eczema. The article is illustrated.

REACTION TO SHOCK

In a preliminary report of a study of the physiologic reaction in anaphylactic and peptone shock (Journal A. M. A., Nov. 1, 1919), J. P. Simonds, Chicago, through the study of the comparative anatomy of the heratic circulation, reaches the interpretation of the physiologic mechanism, namely, that the fundamental physiologic reaction in anaphylactic and peptone shock in dogs is a spasm of the smooth muscle of the walls of the hepatic vein and its branches. In guinea-pigs and rabbits this is less developed, and this anatomic difference or a similar one may acconut for certain types of asthma and serum reaction in human beings. It may also bring peptone shock into relation with surgical and wound shock. "It is only necessary to recall that among the theories advanced by various authors who have studied shock under war conditions is one which makes the absorption of the soluble products of damaged muscle in wounds responsible for the condition. Furthermore, it is obvious that any prolonged spasm of the hepatic vein and its branches, such as occurs in peptone shock in the dog, will lead to the same condition in the general circulation, or at least in the splanchnic area of sequestration of blood in the penules and capillaries as was obserped by Jackson and Janeway in the shock produced by them by the mechanical obstruction of the vena cava for limited periods of time." In interpreting the results of experiments on dogs, especially noting those on blood pressure, this peculiarity of the hepatic vein must be taken into account. The author promises a further discussion of the subject in a paper on the interpretation of the blood pressure curve following epinephrin injection.

FOREIGN BODY IN THE NOSE

Bryed Wilson, Chicago (Journal A. M. A., Nov. 8, 1919), gives an account of a man suffering with obstruction of the right side of the nose, with purulent discharge, causing distress and interference in breathing. Examination with cocain anesthesia revealed a hard mass, part of which was removed in small pieces, but the posterior and larger portion had to be pushed back and expectorated through the mouth. The patient could not explain how the cherry pit, which formed the nucleus of the mass, became lodged in his nose, but it probably occurred in sneezing or coughing while eating cherries. On removal of the mass the symptoms partially subsided and a cure followed a few days later.

HYDROCELE OPERATION

Dewell Gann, Jr., Little Rock, Ark., (Journal A. M. A., Nov. 1, 1919), offers a modification of Andrew's bottle operation for hydrocele, consisting in a skin incision beginning over the cord, near the spine of the pubic, extending outward and upward along the ligamentum inguinale, for which he claims certain advantages over the usual anterior scrotal incision, which it is difficult to sterilize properly. The conval-

escence is, therefore, likely to be more rapid. By the proposed method when the cord is exposed slight traction with gauze will bring the funicular portion of the sac into the lower angle of the incision, and gentle pressure with the finger will indicate the point of fluctuation where a needle can be inserted and the fluid withdrawn without danger to the cord, testicle or epidiymis. The testicle and sac, of any size, may be delivered without the least difficulty. The final technic is that of the original Andrew's operation.

LOBAR PNEUMONIA

The at present usually accepted view that recovery from acute lobar pneumonia is altogether due to protective substances in the blood is questioned by F. T. Lord, Boston (Journal A. M. A, Nov. 8, 1919). These protective substances have been demonstrated in small quantities, but at times they are not demonstrable at all. Bull's discovery of the importance of agglutinins in the disappearance of pneumococci from the blood, and that of Cole of soluble inhibiting substances in the blood with the property of neutralizing pneumococcus antbiodies, mark an advance in our theories. It is possible, of course, that the methods available for the demonstration of humoral immunity are inadequate, but the facts suggest that the humoral factors, while important, are, by themselves alone, insufficient to explain the crisis in pneumonia. In explaining resolution, it has long been clear that enzymatic action must account for the solution of the exudate. Sorensen has called attention to the important relation between H-ion concentration and enzymatic processes in general. Local biochemical changes, as well as humoral factors, may be of importance, and Lord groups these under several headings, such as the production of acid in the metabolism of pneumonia, as shown by diminished carbondioxid content of the blood, an increased ammonia output in the urine, an increased titrable acidity, and an increased alkali tolerance. A partial isolation of the pneumonic lung may also play a part, and this suggests that there may be biochemical changes there which are only slightly reflected in the body as a whole. Experiments with the pneumococcus indicate that it is susceptible to varying H-ion concentration. The production of acid is the most important bactericidal factor in the short viability of the pneumococcus in glucose bouillon cultures. Lord and Nye have shown that a critical degree of H-ion concentration has a bearing on the dissolution of pneumococci. The H-ion concentration of the press juice from the pneumonic lung at necropsy in fatal cases is higher than that of other tissues of the body. Lord reports observations in experiments on dogs with experimental Friedlander and pneumococcus pneumonia, and shows that in one case the H-ion concentration in one involved lobe was 6.0 and that of another 5.4. From the former pure culture of pneumococcus was obtained, but from the latter no growth of pneumococci was obtained. To judge from observations on the acid death point of the pneumococcus, slightly higher concentration than 6.0 would probbaly be fatal to the organisms. As Lord has shown elsewhere, cellular material from a pneumonic lung in a state of gray or red-gray hepatization contains a proteolytic enbyme capable of digesting coagulated blood serum at a H-ion concentration of 7.3 to 6.7, inclusive, and inactive in more acid concentrations. It also contains a proteolytic, peptone-splitting enbyme most active at 6.3 or 5.2. "The finding

of two enzymes in the pneumonic exudate, one digesting coagulated blood serum in weakly alkaline and weakly acid mediums and the other splitting peptone to amino-acid nitrogen with an optimum activity in still more acid mediums, may serve to suggest, independently of the previous observations, that the pneumonic exudate undergoes an increase in H-ion concentration, according to the principle Michaelis established for enzymes in general, that the H-ion concentration of tissue fluid, containing specific enzymes, is the same as that at which the enzymes work best." The findings suggest a theory in explaining of recovery from pneumonia in the course of which humoral immunity is assisted by local biochemical changes. Acidity may be due to partial isolation of the pneumonic lung, permitting a local increase of H-ion concentration, and when this concentration reaches the acid death point of the pneumococcus, crisis and recovery follow. Resolution may possibly be explained by the action of the enzyme digesting protein and its action in weakly alkaline and weakly acid mediums. As the acidity increases this enzyme action ceases. An enzyme capable of splitting peptone to amino-acid nitrogen, also active during the proteolysis of the fibrin, is further activated at a H-ion concentration of 6.3 or 5.2 and the exudate may be dissolved, and resolution takes place.

NERVE SUTURE AND GRAFTING

C. A. Elsberg, New York (Journal A. M. A., Nov. 8, 1919), makes the following suggestions of surgical principles in the technic of suture and grafting of peripheral nerves. A good knowledge of anatomy is required in the identification of the injured nerves as well as care and patience and experience. If the surgeon will first expose a normal part of the nerve or nerves below and above the lesion, and work from normal to scar tissue the identification of injured nerves and their branches even in complicated plexus injuries is always possible. The lower end of a divided nerve should always be exposed and freed first because it is the degenerative end. The upper end should be exposed as briefly as possible and handled with special care without tension to approximate the ends. If there is no actual separation of the nerves, but only a bulbous thickening, this should be examined with the utmost care before being cut across. Whether there are signs of complete interruption or not, the bulb should be carefully incised lengthwise in search for nerve bundles that can be saved. If superficial, they can be easily separated, but when deep may require much patience and care. When it is shown that there is complete anatomic discontinuity of the nerve, the bulb or end bulbs should be divided transversely in successive sections until normal funiculi can be recognized. As the upper end of the injured nerve is often swollen, perfectly good funiculi may appear edematous or glairy. Usually there is fairly active bleeding from the intravenous blood vessels when normal funiculi are reached, and this is especially noted in the sciatic nervous and its branches, and in the median nerve. Usually this can be controlled by gentle pressure, but sometimes fine mosquito forceps must be used and ligation of the vessel with very fine catgut or silk. When the peripheral end bulb is being cut, the end appear like smooth, shiny scar tissue until a point is reached where there are many normal funiculi without any scar tissue. In section of the central bulb the transition from scar to nor-

mal is much more gradual. To prevent rotations of the nerve ends and distortion of the nerve pattern, the epineurium must be grasped a little cepalad and a little caudad to the points where the final sections will have to be made. There is probably a definite pattern and arrangement of the nerve funiculi and even the nerve fibers. Elsberg is studying peripheral nerve operations on the human cadaver and finds in most nerves definite groupings of the funiculi at different levels, often so regular that they can be properly brought together in the suture of the two ends. This should be made without tension, but due consideration should be given to the location of branches. The tension can perhaps be prevented by flexion of adjoining joints. The suture itself is a very delicate operation which is described in detail. If the sutures are well placed a fairly accurate apposition of the ends of the nerve funiculi is possible. All the perineural sutures should be passed before tying. If tied tightly the funiculi are bent at the ends with resulting poor aproximation. Transplantation of nerves to a more superficial level is sometimes necessary, and of this the technic is too minutely described to admit of brief abstracting. We have not yet any definite answer as to how these grafts act. If the condition of the nerve permits it a neurolysis is always better than a resection and suture, nad the latter far better than grafting. The era of perfect peripheral nerve surgery, Elsberg thinks, is still to come. The article is illustrated.

NERVE INJURIES

K. W. Ney, New Orleans (Journal A. M. A., Nov. 8, 1919), describes the pathologic processes in lesions of peripheral nerves which were rather common complications of gunshot injuries, and especially of shell wounds, in the recent war. There may be a complete division of the nerve trunk or only a partial one, and function of the part supplied is usually immediately lost. If the fibers are divided, function is not restored until they are completely regenerated. When scar or other interposed tissue prevents the downgrowing axis-cylinders from reaching the divided end of the distal segment, they stray in all directions and form a bulky mass of nerve tissue which constitutes the neuroma frequently found on the proximal end. Scar tissue contracting about a divided nerve or within a nerve trunk destroys the regenerative activity, and a nerve that is not immediately injured may be caught and compressed until its function is lost with degeneration of the axis-cylinders. Such lesions do not develop a neuroma, and when sectioned the ends present a rather gelatinous appearance which may extend some distance up and down the nerve trunk. After many sections in such cases to find normal tissue, nerve suture has been used by New rather than grafts. The majority of patients with peripheral nerve injuries recover without operation, but a considerable time often elapses. Ney reckons the growth of a regenerating axis-cylinder to be from 1.5 to 2 mm. a dya, if not hindered by scar tissue or sepsis. Practically all war wounds are infected, and it is not safe to operate on wounds recently healed as it may arouse dormant bacteria. Ney has fuond it unadvisable to operate in the vicinity of wounds which have suppurated until they have been completely healed for at least three months. The point also arises, then, as to how much progressive nerve degeneration has taken place. It is not enough to say a certain group of muscles are paralyz-

ed, but the slightest function of every muscle should be tested, and the examination and recording of sensory disturbances is of great value. Accurate charts should be made at each examination to show the area involved. Electrical examination is of value in diagnosis, but less so in determining the presence or absence of regenerative changes. Muscular tone is lost from the time of injury and is manifest only a short time before actual voluntary movements. Ney does not believe that a properly condulted aseptic exposure of a nerve and freeing it from scar tissue is liable to do much harm, but there is perhaps too great a tendency in such cases to resort to resection and suture. When the neuroma that tends to form on the retracted nerve is absent it is almost impossible to differentiate between anatomic division or strangulation of the nerve trunk. We are not able at the present time to make nerve sutures perfect as regards the physiologic topography. When the proximal end of a divided nerve is mechanically irritated, the patient feels a tingling sensation in the area of its sensory distribution, and the progress of the downward growth of the axis-cylinder may be very accurately followed by gentle tapping along the course. At first the formication can be elicited only at the level of the lesion, but at the end of six weeks, if regeneration is progressing, it may be found an inch or an inch and a half below this point, and still further later. This means that certainly some sensory fibers have been able to bridge the gap and this sign of formication has a definite prognostic value depending on its intensity and rate of progress.

PERISTALSIS

W. C. Alvarez, San Francisco (Journal A. M. A., Nov. 8, 1919), says that the fundamental question in gastroenterology is the cause of the propulsion of the food and excreta through the intestinal tract. He asks, for example, what could the heart specialist do in treating arrhythmias until Gaskell, McWilliam, His and others showed where the beat normally arises and how it is transmitted from sinus to ventricle. We should take hope from this good fortune that has come to our confreres, he says, and follow their method fo study. We should study the gastro-intestinal tract in the embryo and in the lower forms of life, the reactions of the muscular coat—its rhythmicity, irritability, etc.—and stop thinking in terms of plumbing and rigid tubes held in one position. Alvarez says: "Six years ago I showed that there is a very definite gradient of rhythmicity in the muscle of the small intestine from duodenum to ileum." It seemed to him then that this might be the essential factor in determining the direction of perstalsis, and in two papers he reviewed much of the literature and showed how many clinical and roentgenologic observations could be explained by accepting this idea. During the past two years he has been able to show that there is a definite gradient of oxidation and carbon dioxid production in the intestinal wall underlying and probably giving rise to the lesser gradients of rhythmicity, tone, etc. Theoretically we can speed up these processes or reverse them. The chemical processes of life, it would appear, go on faster in the duodenum than elsewhere, and if they could be speeded faster in the other portions the process might be reversed. Recent study has shown that the local life processes are greatly speeded up by inflammation, so that it may be that the hyermotility seen in many cases of duodenal ulcer and

cholecystitis, and the hypomotility with appendicitis, may be thus explained. There is another and perhaps more important way of reversing the gradient—by disease toxins. There is considerable evidence that these have such an effect on the heart, and the disordered heart action with digestive disturbances seen existing together after certain infections, such as influenza, may be also thus explained. The author is hoping that further studies of the subject will be richly rewarded.

CLINICAL DIAGNOSIS

H. T. Karsner, Leonard Rothschild and E. S. Crump, Cleveland (Journal A. M A., Aug. 30, 1919), while noting the great advances in modern medicine, say that the vast mapority of clinical diagnoses can be accepted or rejected only on the basis of naked-eye, microscopic, chemical or bacteriologic examination of the body after death. They refer to the percentage of error in diagnosis pointed out by Cabot, and give the results of their own studies of 600 cases equally divided between two large hospitals in Cleveland. As the series is smaller than that of Cabot, and insufficient to permit of the divisions made by him, they decided to classify by organs and systems rather than by special lesions. There are certain marked errors, however, which defy such classification, and these they classified as gross errors and did not include them, but only those instances in which the clinical diagnosis, though perhaps markedly in error, was found correct as to the organ involved. They did, however, include some very obvious errors of omission, numbering 50 of the 600 cases, or eight per cent. As for the hospitals, there was in one six per cent., and in the other 10 per cent. of such errors. There were combined lesions in some cases, which makes the total of diagnoses exceed 6,000. The data used cover several years, and while they cannot be regarded as indicating the diagnostic ability of the visiting chiefs, they do represent the mean diagnostic ability of the clinics. The authors give in a table the number of cases diagnosed correctly and that of those in which the lesion was overlooked, followed by notes on the special classes of errors. The figures, they say, indicate a distinct though slow tendency toward improvement and the authors offer certain suggestions for bettering things, such as that there should be education of the public to the importance of necropsies, legislative action to obviate the requirement of asking permission for them, improvement of hospital regulations, increased interest of physicians in the postmortem work. encouragement of the "selfish interest in post mortems" on the part of "intelligent relatives of the dead," assignment in large hospitals of certain officials to secure permission for post mortems, information given the family as to the cnoditions found, a request for necropsy in every fatal case in hospital or private practice, establishment in the hospitals of regular clinical, pathologic conferences and education concerning the value of postmortem examinations to industry and to life insurance.

HEALTH LAWS UNWISE, SAYS PRELATE.

Every state in the Union and every province in Canada has been wrong in its legal enactments intended for the promotion and protection of the citizen's right to health, in the opinion of the Right Rev. Father Moulinier, S. J., of Milwaukee, Wis., president of the Catholic Hospital Association, who

handed down his denunciation of the health laws in a speech before the Ohio Hospital Association at Cleveland.

He opposes the extending of special privileges to sectarian practitioners of whom he instanced Christian Scientists, osteopaths, chiropractics, and naprapaths. Father Moulinier desires to see the health laws codified to bring all sectarian practitioners under the direction and supervision of qualified medical men whose capacity or function will be that of technician, according to The Modern Hospital, Chicago, Ill., which publishes a report of the Cleveland meeting.

The fact that several states, particularly Ohio, have passed legislation granting the right to practice to sectarians of the groups he names, declares the prelate, indicates a past narrow conception by the public and medical profession of the function that medical men perform.

To regard the doctor or surgeon as a technician he conceives to be the right idea of medical practitioners. They are technicians because medical science is scientific in its methods, while the sectarian practitioner builds a fence around his own notions and excludes from consideration all the outlying lelds of medical knowledge. Father Moulinier sees a grain of truth in each of the fads and sects of sectarian practice. He declares the medical profession has in the past scorned this truth, and thereby have brought on themselves the blame for the disdirected legislation that several states have placed on their statute books.

MUSTARD GAS

E. K. Marshall, Baltimore (Journal A. M. A., Aug. 30, 1919), describes the composition and effects of the mustard gas (dichlorethylsulphid), which is not a gas at all but a high boiling, oily liquid which vaporizes slowly in the air. In the concentrations of the gas present in the field, there is probably little systemic effect, but it has a local action on the respiratory tract, eyes and skin. The systemic action of the substance, however, is important as it leads to a better understanding of its action, and hence to a rational method of treatment. Two of the first points to be determined are its toxicity in the form of vapor, and what concentrations are dangerous in the field. Such knowledge is necessary to ascertain how effective protective devices have to be to remove the gas and to furnish a basis for accurate experimental work on treatment. Difficulties arise. The concentration is not accurately known unless chemical analyses of the air are made, and it is found that concentration decreases markedly with time by condensation on the walls of the experimental chamber, absorption by the hair and skin of the animals and probably by decomposition of the substance by moisture in the air. Marshall describes the methods of meeting these difficulties. Without giving detailed figures, he says, it may be said that the gas is extremely toxic. About one part in three million will cause a skin burn, and in much greatere quantities, death after some days. The reason why it has been more incapacitating than fatal in war conditions is undoubtedly its low vapor pressure. The symptoms are well known and there is no doubt that in high concentrations it is absorbed through the lungs and produces systemic effects in the body. The mechanism of the action seems to be: "1. Rapid penetration of the substance into the cell by virtue of its high liquid solubility. 2. Hydrolysis by the water within the cell to form hydrochloric acid and dihydroxyethylsulphid. 3.

Destruction by dihydrochleric acid of some part or mechanism of the cell." The ideal treatment for mustard gas poisoning would be to employ some nontoxic substance to penetrate the cell and neutralize the action of the hydrochloric acid. Efforts have been made in this direction but have not been entirely successful. Some persons are more readily affected by mustard gas on the skin than are others. Negroes as a race are more resistant, and from two to three per cent. of white men are hyersensitive, while from 20 to 40 per cent. are resistant. One may be severely affected while others are not at all."

TYPHOID CARRIERS

The surgical treatment of typhoid carriers is the subject of an article by H. J. Nichols, J. S. Simmons and C. O. Stimmel, Washington, D. C. (Journal A. M. A., Aug. 30, 1919). The literature of treatment of typhoid carriers contains the record of a number of apparent cures following cholicystectomy and the use of the roentgen ray, vaccines, lactic acid bacilli and various drugs. The conclusions in these cases, however, are based almost altogether on the results of cultures of the feces, and the authors here cited consider this not altogether conclusive. Under the direction of the surgeon-general's office, examinations were made at the beginning of the war of a large number of men, and on account of the unusual opportunity to investigate the carrier problem, the carriers found were collected, as far as possible, at the Walter Reed General Hospital for treatment and observation. Some of them consented willingly to operation when surgical treatment was advised, and the remainder agreed when the alternatives of court martial and probably cure were explained to them. Several cases are reported and the findings in them described. The standard test of operative cure was three successive negative cultures of duodenal contents. The summary and conclusions of the work are given as follows: "1. So-called urinary typhoid carriers are really kidney carriers and can be cured by nephrectomy. An additional argument for operation is present if the infected kidney is functionless. One such case is recorded. 2. 'Intestinal' carriers are really bile passage carriers of two kinds: (a) Cases in which the gallbladder alone is infected. These can be cured by cholecystectomy. Four such cases are recorded. (b) Cases in which the gallbladder and bile passages are both infected. In these cases cholecystectomy does not cure the carrier condition, and the condition is incurable at present. Two such cases are recorded. 3. The surgical treatment of typhoid carriers, while not perfect, is the best available."

AMERICANS OPERATE 'PIONEER' HOSPITAL IN BALKANS

With the exception of an operating table and a big sterilzier, two American doctors and two nurses "manufactured" an operating room in the Balkans, at Prizren in western Serbia. The doctors in charge were Captain Bradner and Lieut. Krug, on detached service with the American army. Their release was obtained by the American Red Cross that they might engage in public health work in the Balkans with the commissinos sent by the American Red Cross. Equipment was difficult to obtain in the quantities needed, and their clinic was supplied only with an operating table and a sterilizer. An instrument-sterilizer was made out of tin cans; the table and cupboard were packing cases.

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JUVENILE PARETIC

E. L. Hunt, New York (Journal A. M. A., Nov. 8, 1919), describes a case of juvenile paresis—a crippled and demented boy, aged 12, who, up to the age of nine, had been able to attend school, but after that was unable to keep up, and finally became too grea a care to be left at home and was sent to the hospital. Treatment has been of no avail. The laboratory reported a markedly positive Wasserman test both in blood and spinal fluid, nad butyric acid and colloidal gold tests were also positive. All the family were induced to take the Wasserman test excepting the father, who positively refused, and in all it was strongly positive.

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